

Pleomorphic Adenoma of the parotid gland: A Case Report

Nuoya Yang, Wang Zhao

North China University of Science and Technology, Hebei 063200, China

Abstract. Objective: to report a case of left parotid adenocarcinoma in pleomorphic adenoma in order to improve the understanding of the disease. Methods: the clinical characteristics, clinical manifestations and risk factors of a case of left parotid adenocarcinoma in pleomorphic adenoma were analyzed. Results: clinical characteristics: the patient had a long clinical course and was diagnosed as "left parotid gland cancer in pleomorphic adenoma", in which the cancer component was considered as adenoid cystic carcinoma, and the cancer tissue accounted for about 90%. Immunohistochemical results: CK (+), S-100 (+), CK5 / 6 (+), CK8 / 18 (+), CD117 (-), p63 (+), p53 (partial +, wild-type expression pattern), ab (+), CK7 (partial +), CK19 (partial +), Ki-67 index 30%. Conclusion: Adenoid cystic carcinoma is easy to be missed and misdiagnosed due to its asymptomatic clinical features in the early stage. The lesion is easy to spread along the nerve, has strong invasion, has no boundary with surrounding tissues, and is easy to metastasize to the blood tract. Pathology combined with immunohistochemistry is the gold standard for diagnosis. The main treatment was surgical resection with close follow-up after operation.

Keywords: pleomorphic adenoma; parotid gland; case report.

1. Medical record information

The patient, female, was admitted to the hospital in May 2023 due to a tumor in the left parotid gland area for approximately 5 months. Check: Body temperature: 36.3 °C Breathing: 19 beats/minute Pulse: 82 beats/minute Blood pressure: 105/74mmHg. The left and right sides of the maxillofacial region are not symmetrical, and there is no redness, swelling, or rupture of the maxillofacial skin. The skin below the left earlobe is slightly raised, and a lump is touched below the left earlobe, about 2.0cm X 1.5cmX1.0cm in size. The texture is medium to hard, the surface is smooth, and the boundary with surrounding tissues is clear. The activity is average, and there is slight pain and no numbness when touched. The facial expression muscle movement is normal, no static or motor facial paralysis is found, and the bilateral temporomandibular joint movement is normal, without any sound. There is no abnormality in the opening degree or opening type. There is no redness, swelling or rupture of the internal mucosa, no redness or swelling at the duct openings of both parotid and submandibular glands, clear fluid flowing out from the duct openings of the compressed glands, and no abnormalities observed during palpation of the bilateral submandibular gland ducts. No obvious enlarged lymph nodes were palpated under the chin, bilateral submandibular, and neck. 3. Auxiliary examination: On May 12, 2023, our hospital's parotid gland CT (examination number: 5844499) revealed a nodular lesion in the left parotid gland. It is recommended to undergo enhanced examination. Admission diagnosis: Left parotid gland mass.

In patient diagnosis and treatment process: After admission, based on: 1. Medical history: Left parotid gland tumor for about 5 months. 2. Specialized physical examination: The skin below the left earlobe is slightly raised, and a lump about 2.0cmX1.5cmX1.0cm in size is touched below the left earlobe. The texture is medium to hard, the surface is smooth, the boundary with surrounding tissues is clear, the activity is average, and there is slight pain and no numbness when touched. 3. Auxiliary examination: On May 12, 2023, our hospital's parotid gland CT (examination number: 5844499) revealed a nodular lesion in the left parotid gland. It is recommended to undergo enhanced examination. The initial diagnosis is a mass in the left parotid gland area. Comprehensive physical examination after admission; Blood routine test, urine routine test, blood coagulation series, human HIV antibody, syphilis antibody, blood type, liver function and kidney function, electrolyte, blood sugar, blood lipid, myocardial enzyme, hepatitis B two half, hepatitis C antibody, chest radiograph,



electrocardiogram, parotid gland CT. Excluding surgical contraindications, left parotid gland mass and partial lobectomy were performed under general anesthesia on May 13, 2023.

The surgical procedure (intraoperative situation and management): 1. After successful general anesthesia, the patient is in a supine position, with a shoulder pad and head tilted back to the right. Iodophor is used to disinfect the oral, maxillofacial, neck, and anterior chest area, and sterile sheets are routinely placed. 2. Locally inject 1% ropivacaine injection with 1:100000 adrenaline into the surgical area, and make a 4.0cm incision parallel to the lower edge of the mandible from the posterior edge of the mandibular ramus to 1.5cm below the mandible along the left earlobe. Cut open the skin and subcutaneous tissue, flip the flap forward along the superficial fascia of the parotid gland, and expose the parotid gland. The greater auricular nerve passes through the fascia of the parotid gland, isolate and protect it, and open the parotid gland downwards, The palpable mass is located within the superficial lobe of the parotid gland and separated along the normal parotid tissue surrounding the mass. During surgery, the facial nerve is located deep in the mass and is separated and protected. Completely remove the tumor and surrounding superficial lobe tissue of the parotid gland, and ligate the remaining end of the parotid gland with the 1 # suture. Rinse the surgical area with a large amount of physiological saline, and after sufficient hemostasis, insert an absorbable hemostatic gauze. Install one rubber drainage strip in the surgical area. 3-0 absorbable suture is used to close the superficial fascia and subcutaneous tissue of the parotid gland, while 5-0 absorbable suture is used to close and suture the skin. Sterile dressings are used for compression and fixation in the surgical area. 3. After surgery, the surgery was successful, and there were no missing instruments. There was approximately 20ml of intraoperative bleeding. 4. After removing the tracheal intubation, the patient returns to the ward safely. Body temperature: 36.2 °C Pulse: 66 beats/minute Breathing: 18 beats/minute Blood pressure: 99/62mmHg. Pathological specimen visible to the naked eye: Left parotid gland area mass, approximately 1.0cm×1.5cm×1.0cm in size, light yellow, with intact capsule and medium quality. Postoperative anti-inflammatory treatment: Cefazolin sodium 1.0g 2/day intravenous infusion; Onidazole 0.5g 2/day static point. Closely observe the changes in the condition, pay attention to the bleeding situation in the surgical area, and regularly change the dressing of the incision. From May 22, 2023 to May 22, 2023, our hospital's routine pathology (pathology number: 202304702) pathological diagnosis: (Left parotid gland tumor) The cancer is considered to be a pleomorphic adenoma, and the component of the cancer is considered to be adenoid cystic carcinoma, with cancer tissue accounting for about 90%. It is recommended that the higher-level hospital conduct molecular pathology testing to further clarify the diagnosis. Immunohistochemical results: CK (+), S-100 (+), CK5/6 (+), CK8/18 (+), CD117 (-), P63 (+), P53 (partial+, wild-type expression pattern), AB (+), CK7 (partial+), CK19 (partial+), Ki-67 index 30%. Based on the routine pathological results of our hospital, a revised diagnosis was made: left parotid gland cancer is in pleomorphic adenoma. Discharged on May 23, 2023.

2. Discussion

Most salivary gland tumors are benign or low-grade malignant. Most tumors in the superficial lobe of parotid gland are benign. [1] In the mandibular gland, sublingual gland and mandibular gland, the tendency of canceration is high. [2] Pleomorphic gonadal tumor (benign tumor) and mastoid cystadenoma are epithelial benign tumors, which are most common in salivary glands. Because of the absence of symptoms in the early stage, the metastatic rate of ACC is as high as 40%. So far, about 15% of patients have developed cervical lymph node metastasis, and 3%-5% of patients have distant metastasis. which is likely due to the abnormal high expression of ras oncogene. Clinically, it can be seen that the size of the tumor is between 0.7 cm and 8 cm, and the quality is very poor. The resection margin has a high positive rate. It is easy to relapse after surgery, with a recurrence rate of 25%. [3] The time of metastasis after surgery can be at least 3-5 years or more after the treatment of the primary lesion. The most common is the lung, and the others include the liver, kidney, bone, brain, etc. The probability of reaching regional lymph nodes is very small, about 5% - 15%. [4-5] Basal ACC has high cervical lymph nodes , with I B and II B as the most common areas, and large salivary

glands are more likely to cause lymph node metastasis than small salivary glands.[6]Surgical resection plus radiotherapy is still the main treatment for acc. If the tumor is located in the parotid gland, it should be completely removed, while for the facial nerve, it needs to be judged according to the situation of the tumor. The facial nerve is adjacent to or invaded by the facial nerve. Postoperative radiotherapy can obtain better curative effect. [7]

Acknowledgments

Funding: This paper was Supported by the Graduate Student Innovation Fund of North China University of Science and Technology (2023S05).

References

- [1] Yousra Z, Saliha C. Pleomorphic adenoma of hard palate: a case report. *Pan Afr Med J.* 2021 Feb 9; 38: 146.
- [2] Middleton H, StreLOW B. Pleomorphic adenoma of the parotid gland. *JAAPA.* 2022 Sep 1;35(9):54-56.
- [3] Zbären P, Vander Poorten V, Witt RL, Woolgar JA, Shaha AR, Triantafyllou A, Takes RP, Rinaldo A, Ferlito A. Pleomorphic adenoma of the parotid: formal parotidectomy or limited surgery? *Am J Surg.* 2013 Jan;205(1):109-18.
- [4] Emodi O, El-Naaj IA, Gordin A, Akrish S, Peled M. Superficial parotidectomy versus retrograde partial superficial parotidectomy in treating benign salivary gland tumor (pleomorphic adenoma). *J Oral Maxillofac Surg.* 2010 Sep;68(9):2092-8.
- [5] Lavorgna G, Savastano G, Rubino C. La recidiva cancerizzata dell'adenoma pleomorfo della parotide. Considerazioni da un caso [The cancerous recurrence of a pleomorphic adenoma of the parotid. Comments on a case]. *Minerva Stomatol.* 1992 Apr;41(4):145-50. Italian.
- [6] Park SY, Han KT, Kim MC, Lim JS. Recurrent Pleomorphic Adenoma of the Parotid Gland. *Arch Craniofac Surg.* 2016 Jun;17(2):90-92.
- [7] Zernial O, Springer IN, Warnke P, Härle F, Risick C, Wiltfang J. Long-term recurrence rate of pleomorphic adenoma and postoperative facial nerve paresis (in parotid surgery). *J Craniomaxillofac Surg.* 2007 Apr;35(3):189-92.